

REMARKS

Reconsideration of the above-captioned application is respectfully solicited.

The objection to the drawings made on page 2 of the Official Action apparently means that the formal drawings submitted on October 17, 2001 did not reach the file. Enclosed is a copy of the paper that was submitted, along with a copy of a postal card receipt. Also enclosed is a proposed drawing amendment for reversing numerals 8 and 10.

Claims 1, 4, 5, 9 and 13 have been amended to overcome any indefiniteness thereof.

It is submitted that independent claims 1, 16 and 17 distinguish patentably over the applied prior art, i.e., Auth and Linn et al. Each of those claims recites means for making blind openings in a wall of a duct of a human or animal body. Auth does not disclose a tool having such abilities. Auth's tool is intended to remove abnormal deposits of lipids from a duct wall, and is specifically configured to avoid any appreciable cutting of the duct wall itself. For example, Auth states that:

the primary object of this invention is to remove plaque and other obstructions from organic structures by safely passing a differential cutting tool into the organ through an accessible portion of the anatomy which cutting tool can controllably remove abnormal deposits without damage to normal tissue structure (column 2, lines 63-68; emphasis added).

* * *

The angle of the cutting face with the circumference of the tool is selected so that the tool does not cut into the relatively soft vessel (column 3, lines 22-25; emphasis added).

Auth discloses a tool for removing solid deposits that have formed on a duct wall. This tool is made of one piece, has an elliptic shape and consists of a nose (28) and cutting flutes (14) forming the cutting faces (18). When this tool rotates (at least 2000 revolutions per minute), the flutes abrade the duct surface and remove the

solid deposits without hurting the healthy tissues. This is permitted by a careful choice of the angle of the cutting faces (see column 8, lines 43-47). Accordingly, not only does Auth not disclose a tool able to enter an inner surface of the duct wall to make blind openings in the wall, but he also teaches away from such a tool.

Claim 3 recites that the entry means is radially expandible. The Official Action asserts that it would have been obvious to combine the teachings of Auth and Lemelson to obtain a catheter comprising a cutting tool capable of radial extension under the action of a balloon. Lemelson's balloon functions to expand a plurality of separate blade supports 16a, 16b. However, the tool disclosed by Auth is made of one rigid piece, this condition being necessary due to the fact that the number of flutes and the angle of the cutting faces must be precisely respected in order for this tool to be efficient and avoid cutting the duct wall. Moreover, the flutes on the tool of Auth are helical, whereas the catheter disclosed by Lemelson comprises blade supports which must extend parallel to the axis of the catheter to be able to extend radially. Accordingly, no artisan would have attempted to make Auth's tool expandible.

Furthermore, it would not have been obvious to provide Auth with Lemelson's cutters, because Lemelson's cutters are not designed to avoid cutting a duct wall as required by Auth.

Claim 5 recites cutting or perforating elements that are spaced apart along a longitudinal axis of the device. Auth discloses cutters in the form of circumferentially adjacent, helical edges. Each edge extends continuously and is not comprised of axially spaced cutting elements. Nor would it have been obvious to provide Auth with axially spaced cutting elements, because such a structure would defeat Auth's intention to avoid cutting the duct wall.

Note that new claim 17 recites that the entering means is expandible and that the cutting means comprises axially spaced elements. Claim 18 further recites that the dispenser means includes a cuff slidable axially over the expandible entry means to be expanded thereby. Auth's entry means 1 is not expandible.

In light of the foregoing, it is submitted that the present application is allowable.

Respectfully submitted,

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Attachment to Amendment dated October 11, 2002
Marked Copy: Paragraph bridging pages 40-41

The inner tool 104 shown in figure 11 also comprises a balloon 6 mounted on a tube 8 for its inflation. The inner tool also comprises arms 140, here three in number, carrying cutting parts. The arms are connected via their proximal end to a common cylindrical support 142 fixed to the tube. Each arm has an elongated spiral shape around the axis of the catheter, around the balloon. The three arms are evenly distributed around the axis. The three arms 140 are made in a material that is elastically flexible. they are at rest when the balloon is deflated as in figure 11. When the balloon is inflated, as in figure 12, the three arms open out elastically under the influence of the balloon. They maintain their spiral shape but the radius of the spiral becomes greater. Each arm has a local flat shape the thickness of the arm extending in a direction radial to the axis. Each arm [7] 140 carries cutting parts on its outer surface that are here formed of sharp ridges 116 which project upwards above the outer surface. Each ridge 116 is of long rectilinear shape and extends from one side to the other of the arm edges. Here the ridges are oriented parallel to the axis of the catheter. All the ridges are therefore parallel to one another and extends from front to back. Figure 15 shows the arrangement of the ridges and arms for a catheter comprising five arms.

Attachment to Amendment dated October 11, 2002
Marked Copy: Claims 1-14 and 16 [As Amended]

1. (Amended) Device [(2; 102)] for administering a composition in a wall of a duct [(14)] of a human or animal body, which comprises means [(4; 104) to enter] for entering an inner surface [(12)] of the duct wall and making [to make] blind openings [(36)] in a thickness of the wall, and a dispenser [dispensing] means [(20; 120) to place] for placing the composition in contact with the openings.

2. (Amended) Device according to Claim 1, wherein the entry means [(4; 104)] comprise cutting parts [(116)] or perforating parts [(16)].

3. (Amended) Device according to Claim 1, wherein the entry means [(4; 104)] are radially expandable relative to an axial direction of the device.

4. (Amended) Device according to [any] Claim 1, wherein the entry means [(4; 101)] are associated with an inflatable chamber [(6; 106)].

5. (Amended) Device according to Claim 4, wherein the entry means comprises cutting or perforating [means] elements [(16) are] carried by a wall of the inflatable chamber and spaced apart along a longitudinal axis of the device [(6)].

6. (Amended) Device according to Claim 2, wherein the entry means comprise arms [(140)] carrying the cutting or perforating parts [(116)].

7. (Amended) Device according to Claim 6, wherein the arms [(140)] are associated with a tube on which an inflatable chamber [(8)] is mounted.

8. (Amended) Device according to Claim 1, wherein the dispenser means [(120)] are radially extensible relative to an axial direction of the device.

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9. (Amended) Device according to Claim 1, wherein the dispenser means [(20)] have channels [(24)] able to receive the composition, the channels being open in a direction perpendicular [opposite] to an axis of the device or closed by a wall containing openings.

10. (Amended) Device according to Claim 1, wherein the dispenser means [(20; 120)] comprise a wall having outer openings [(124)].

11. (Amended) Device according to Claim 1, wherein the dispenser means [(20; 120)] surround the entry means [(4; 104)].

12. (Amended) Device according to Claim 1, wherein the dispenser means [(20; 120)] are [adopted] adapted to slide in relation to the entry means [(4; 104)] along an axial direction of the device.

13. (Amended) Device according to Claim 1, wherein the [balloon (4; 104)] inflatable chamber expands the dispenser means [(20; 120)] in a radial [fashion] direction.

14. (Amended) Device according to Claim 1, [adopted] adapted to administer a composition in the wall of a blood vessel, artery [(14)], or an artery carrying a stent [(30)].

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16. (Amended) Device [(2; 102)] for administering a composition in a wall of a duct [(4)] of a human or animal body, which comprises means [(4; 104) to enter] for entering an inner surface of the duct wall and making [to make] blind openings [(36)] in the thickness of the wall, said means carrying cutting parts [(116)] or perforating parts [(16)] and being expandible radially relative to an axis of the device, the device including dispenser means [(20; 120) to place] for placing the composition in contact with the openings, the dispenser means being radially expandible and [adopted] adapted to surround the entry means [(4; 104)].